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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,602	11/25/2003	Pawan Goyal	ARC920030077US1	5994
55508 7590 04/12/2007 JOSEPH P. CURTIN, L.L.C. 1469 N.W. MORGAN LANE PORTLAND, OR 97229-5291			EXAMINER DAYE, CHELCIE L	
			ART UNIT 2161	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/721,602		GOYAL, PAWAN	
	Examiner		Art Unit	
	Chelcie Daye		2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20,22-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-24, and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is issued in response to applicant's amendment filed February 5, 2007.
2. Claims 1-20,22-24,and 26 are presented. Claims 21 and 25 are cancelled and no claims added.
3. Claims 1-20,22-24,and 26 are pending.
4. Applicant's arguments filed February 5, 2007, have been fully considered but they are not persuasive.

Continued Examination Under 37 CFR 1.114

5. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 5, 2007 has been entered.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2161

7. Claims 1,7,10,15,and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, claims 1,7,10,15,and 20, recite the limitation "... having a sequential identification that is prior to or equal to and not later than the sequential identification ...", which is not adequately supported within the specification thereby rendering a written description/new matter rejection. In particular, the claim language states 'prior to or equal to', which equates to an identifier before or exactly the same as another identifier, however, examiner is unsure why the addition of 'and not later than' was incorporated and where within the specification this is supported. Applicant has cited within the remarks, the support for the amendments to the claims can be found in paragraphs [16-22]. However, after further reading of the specification, examiner is only able to find within paragraph [19], the citation wherein "*flow continues to step 207 where data records having a Log Sequence Number (LSN) that are less than or equal to L_{min} are sent to remote site for remote copy*". There is no further limiting statement of the sequential identification '*not later than*' another sequential identification. In order to further prosecution, the broadest reasonable interpretation will be given to the claim language.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2161

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

9. Claims 1,7,10,15 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Newly amended independent claims 1,7,10,15 and 20 are rejected under 35 U.S.C. 112, second paragraph, for having negative limitations, which are not clearly pointed out within the description. Specifically, the claims recite the limitation "... having a sequential identification that is prior to or equal to and not later than the sequential identification ...". The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph. Some older cases were critical of negative limitations because they tended to define the invention in terms of what it was not, rather than pointing out the invention. Thus, the court observed that the limitation "R is an alkenyl radical other than 2-butenyl and 2,4-pentadienyl" was a negative limitation that rendered the claim indefinite because it was an attempt to claim the invention by excluding what the inventors did not invent rather than distinctly and particularly pointing out what they did invent. In re Schechter, 205 F.2d 185, 98 USPQ 144 (CCPA 1953). A claim which recited the limitation "said homopolymer being free from the proteins, soaps, resins, and sugars present in natural Hevea rubber" in order to exclude the characteristics of the prior art product, was considered definite because each recited limitation was definite. In re Wakefield, 422 F.2d 897, 899, 904, 164 USPQ 636, 638, 641 (CCPA 1970). In

Art Unit: 2161

addition, the court found that the negative limitation "incapable of forming a dye with said oxidized developing agent" was definite because the boundaries of the patent protection sought were clear. *In re Barr*, 444 F.2d 588, 170 USPQ 330 (CCPA 1971). Any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) ("[the] specification, having described the whole, necessarily described the part remaining."). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation, which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Note that a lack of literal basis in the specification for a negative limitation may not be sufficient to establish a *prima facie* case for lack of descriptive support. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (Bd. Pat. App. & Inter. 1993). See MPEP § 2163 - § 2163.07(b) for a discussion of the written description requirement of 35 U.S.C. 112, first paragraph. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the

Art Unit: 2161

applicant regards as his invention. A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form. Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 1-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai (US Patent No. 6,502,205) filed November 10, 2000, in view of Shomler (US Patent No. 5,623,599) filed July 29, 1994.**

Regarding Claim 1, Yanai discloses a method for asynchronously remotely copying database content changes from a primary site to a remote site, the method comprising:

associating a sequential identification with each respective log record write and each corresponding data record write received at the primary site, each data record write containing modifications to a page of the database and each log

record write containing information relating to modifications to the page of the database for a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai). However, Yanai is silent with respect to asynchronously remotely copying each respective log record write from the primary site to the remote site; receiving an acknowledgement at the primary site, the acknowledgement corresponding to a log record write that has been completed at the remote site; and asynchronously remotely copying each data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement. On the other hand, Shomler discloses asynchronously remotely copying each respective log record write from the primary site to the remote site (column 4, lines 10-17, Shomler); receiving an acknowledgement at the primary site, the acknowledgement corresponding to a log record write that has been completed at the remote site (column 9, lines 33-39, Shomler); and asynchronously remotely copying each data record write having a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler). Yanai and Shomler are analogous art because they are from the same field of endeavor of maintaining a copy of data stored at a remote location from the primary data storage device. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Shomler's teachings into the Yanai system. A skilled

artisan would have been motivated to combine as suggested by Shomler at column 3, lines 9-14, in order to secure transactions at a remote site without interrupting the flow of other transactions in the system. Therefore, such a system should be simple to implement, efficient and non-disruptive to existing asynchronous copy systems.

Regarding Claims 2 and 8, the combination of Yanai in view of Shomler, disclose the method wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claims 3 and 9, the combination of Yanai in view of Shomler, disclose the method wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 4, the combination of Yanai in view of Shomler, disclose the method wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 5, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32,

Shomler)¹ and each data record write is a data block write (column 9, lines 18-20, Shomler)².

Regarding Claim 6, the combination of Yanai in view of Shomler, disclose the method further comprising:

asynchronously receiving a log record write at the remote site (column 4, lines 10-17, Shomler);

storing the received log record write at the remote site (column 10, lines 43-58, Yanai);

sending an acknowledgement from the remote site to the primary site when the received log record write is complete (column 10, lines 1-8, Shomler);

asynchronously receiving a data record write at the remote site from the primary site (column 10, lines 34-45, Shomler); and

storing the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 7, the combination of Yanai in view of Shomler, disclose a method for asynchronously remotely coping database content changes occurring at a primary site at a remote site, the method comprising:

asynchronously receiving a log record write at the remote site (column 4, lines 10-17, Shomler), each respective log record received at the remote site having an associated sequential identification and a corresponding data record

¹ Examiner Notes: A token is a primitive block of structured text, which therefore corresponds with the log

Art Unit: 2161

write, each data record write containing modifications to a page of the database and each log record write containing information relating to modifications to the page of the database for a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai);

storing the received log record write at the remote site (column 10, lines 43-58, Yanai);

sending an acknowledgement from the remote site to the primary site when the received log record write is complete (column 10, lines 1-8, Shomler);

asynchronously receiving a data record write at the remote site from the primary site, each received data record write having a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler); and

storing the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 10, the combination of Yanai in view of Shomler, disclose a storage system for asynchronously remotely copying content changes stored in the storage system, the system comprising:

a primary site having a storage system separately storing log records and data records (Fig.12, item 214, Yanai);

block.

² Examiner Notes: "Token" corresponds to block.

a remote site having a storage system separately storing log records and a data records (Fig.12, item 246, Yanai),

the primary site associating a sequential identification with each respective log record write and each corresponding data record write occurring at the primary site (column 32, lines 34-58 and column 33, lines 7-10, Yanai) and asynchronously remotely copying each respective log record write from the primary site to the remote site (column 4, lines 10-17, Shomler), each data record write containing modifications to a page of the database and each log record write containing information relating to modifications to the page of the database for a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai), the remote site sending to the primary site an acknowledgement corresponding to a log record write that has been completed at the remote site (column 10, lines 1-8, Shomler), and the primary site asynchronously remotely copying to the remote site each data record write having a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler).

Regarding Claim 11, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 12, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 13, the combination of Yanai in view of Shomler, disclose the system wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 14, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Regarding Claim 15, the combination of Yanai in view of Shomler, disclose a primary site of a distributed storage system, the system comprising:
a storage system separately storing log records and data records (Fig. 12, item 214, Yanai), each data record write containing modifications to a page of the database and each log record write containing information relating to modifications to the page of the database for a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai); and

a controller (Fig.1, item 16, Yanai) associating a sequential identification with each respective log record write and each corresponding data record write occurring at the primary site (column 32, lines 34-58 and column 33, lines 7-10, Yanai) and asynchronously remotely copying each respective log record write from the primary site to a remote site (column 4, lines 10-17, Shomler), the controller receiving an acknowledgement corresponding to a log record write that has been completed at the remote site and (column 9, lines 33-39, Shomler), in response, asynchronously remotely copying to the remote site each data record write having a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler).

Regarding Claim 16, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 17, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 18, the combination of Yanai in view of Shomler, disclose the system wherein a log record write is asynchronously remotely

Art Unit: 2161

copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 19, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Regarding Claim 20, the combination of Yanai in view of Shomler, disclose a remote site of a distributed storage system, the system comprising:

a storage system separately storing log records and data records (Fig.12, item 246, Yanai), each data record write containing modifications to a page of the database and each log record write containing information relating to modifications to the page of the database for a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai),

a controller (Fig.1, item 44, Yanai) asynchronously receiving a log record write from a primary site (column 4, lines 10-17, Shomler), each respective log record received at the remote site having an associated sequential identification and a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai), storing the received log record write in the storage system (column 10, lines 43-58, Yanai) and sending an acknowledgement from the

Art Unit: 2161

remote site to the primary site when the received log record write is complete (column 10, lines 1-8, Shomler), the controller further asynchronously receiving a data record write from the primary site, each received data record write comprising a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler), and storing the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 21, the combination of Yanai in view of Shomler, disclose the remote site wherein the controller further asynchronously receives a data record write from the primary site (column 10, lines 34-45, Shomler), each received data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler), and stores the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 22, the combination of Yanai in view of Shomler, disclose the remote site wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 23, the combination of Yanai in view of Shomler, disclose the remote site wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 24, the combination of Yanai in view of Shomler, disclose the remote site wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 26, the combination of Yanai in view of Shomler, disclose the remote site wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Response to Arguments

Applicant argues, the combination of Yanai in view of Shomler, does not disclose the newly amended limitation of "asynchronously remotely copying each data record write having a sequential identification that is prior to or equal to and not later than the sequential identification of the log record write corresponding to the received acknowledgement".

Examiner respectfully disagrees. As stated within the office action, Shomler discloses at column 10, lines 34-45, wherein *"the remote copy system described may, as part of its normal operation, cause the secondary to send periodic and regular acknowledgement messages (ACKN) to the primary. These ACKN's identify the event number (sequence or clock time) for data and messages received from the primary, with each ACKN informing the primary that all events up to and including the event number given have been secured at the secondary"*. Examiner interprets the informing of the events up to and including (i.e., prior to or equal to) the event number given within the primary to be secured at the secondary within the remote copy system to correspond to the argued limitation above. Also, the amended limitation of 'and not later than' is understood within the disclosed citation of the Shomler reference, because the inequality statement of up to and including represents the claim limitation of prior to or equal to, which also represents less than or equal to. Therefore, the inequality of less than or equal to is understood to exclude anything later than or greater than the identified sequential identification. As a result, the combination of Yanai in view of Shomler, disclose the argued limitation.

Art Unit: 2161

Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chelcie Daye whose telephone number is 571-272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye
Patent Examiner
Technology Center 2100
April 5, 2007

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